CLAIMS

What is claimed is:

1. A method of detecting photons, comprising the acts of:

providing a superconductor strip;

electrically biasing said superconductor strip; and

directing light onto said biased superconductor strip;

wherein said biasing is at a level near said superconductor strip's critical current thereby to detect a single photon incident on said superconductor strip.

2. The method of claim 1 wherein said single photon is detected by measuring an output pulse from said superconductor strip.

3. The method of claim 1 wherein said superconductor strip is of niobium nitride.

4. The method of claim 1 wherein said single photon has a wavelength between the visible and the far infrared spectral regions.

5. The method of claim 1 wherein said superconductor strip defines a meander.

6. The method of claim 2 wherein said superconductor strip has a width equal to or less than about 200nm.

7. A photon detector comprising a superconducting film coupled to a bias source, wherein

said superconducting film is biased near its critical current, and wherein said superconducting film has a dimension which allows detection of a single incident photon.

8. The photon detector of claim 7 wherein said superconducting film is of niobium nitride.

9. The photon detector of claim 7 wherein a width of said superconducting film is equal to or less than about 200nm.

10. The photon detector of claim 7 wherein said superconducting film forms a detectable resistive region upon absorption of said single incident photon.

11. The photon detector of claim 7 further comprising:

a plurality of contact pads coupled to ends of said superconducting film; and

wherein said bias source is coupled to said superconducting film at said plurality of contact pads.

12. The photon detector of claim 7 wherein said superconducting film defines a meander.

13. The photon detector of claim 11 wherein said contact pads include gold.

14. The photon detector of claim 7 wherein light is coupled to said superconducting film using an optical fiber.

15. The photon detector of claim 7 wherein light is coupled to said superconducting film through a hemispherical lens.